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ABSTRACT

Linguistic and psychological factors which bear on the concept of "intuitive thinking" are analyzed with respect to second language learning. Analytical thinking is considered as being logical, cognitive, and objective while intuitive thinking is considered to be creative, constructive, and non-analytical. Following a brief discussion of Piaget's theories concerning language and thought, the author comments on the relationship of intuitive thinking and prior knowledge. Concluding remarks emphasize the intimate relationship of thought and language. (RL)

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INTUITIVE THINKING IN FOREIGN LANGUAGE LEARNING

by

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The Brain--is wider than the Sky--
For--put them side by side--
The one the other will contain
With ease--and You--beside

--Emily Dickinson

In the early twenties most modern-minded language teachers probably considered the art of designing a language course to be in its infancy. [1] Almost fifty years later, with the help of linguistics, this art has reached its adolescence. How long will it take to mature fully is an open question, the answer to which most likely lies in the hands of language-oriented psychologists and psychology-oriented linguists.

From Palmer's days to our own, it has been an undisputed fact that a good second-language program must have both a linguistic and a psychological rationale.[2]

> Certains, j'en suis sur, estimeront que mon ouvrage n'est pas assex technique. Plusieurs amis m'ont suggere avec insistance de presenter le sujet au soul point de vue de la psychologie, d'autres de me servir exclusivement de termes scientifiques. Mais...je sens que le sujet n'est pas mur pour subit une analyse detaillee envisagee sous l'angle de la psychologie pure. De plus competents que moi la tenteront peut-entre quand le moment sera venu. [3]

It seems as though this moment Palmer was talking about has finally arrived. At the 1959 Woods Hole Conference on Science, psychologists were brought together with leading scientists, for the first time, to discuss the problems involved in teaching their various disciplines.[4] Politzer's new edition of Teaching French (1956) includes a chapter on "Some Psychological Aspects of Language Learning." Belyayev (1963) and Rivers (1964) have published books on the subject, and an increasing number of articles dealing with the topic have appeared in the journals. In the schools, more and more language teachers have come to realize that linguistics and its application to language teaching do not provide them with the answers to all the problems.[5] Politzer admits that

> Linguistics or Applied Linguistics as such has no answer to the many problems which are still confronting the language teacher.

And more explicitly and to the point, he adds that "Linguistic

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science as such has no direct answer when it comes to some of the purely psychological factors in language learning."[7]

Linguistics tells us what to teach, psychology how and why. Any method of second-language teaching should have as its basis not only the data furnished by linguistics, but also that furnished by psychology, for "language and thought are inseparable."[8]

This paper, then, will examine a psychological aspect of second-language learning, namely thought, and a particular kind of thinking, which we may call intuitive.

Thinking

It had been said that the unique human skill is thinking,[9] which leaves the question of what is thinking quite unanswered. Definitions of thinking range from daydreaming to creating the concept of relativity, from remembering to having an opinion, from analyzing to constructing, from forming associations to perceiving a structure. None are adequate or comprehensive.

Whatever thinking is, in order for it to take place or develop, certain requirements or conditions must be met. Shands (1960) sets three conditions which limit thinking: the nervous system, the social system, and the individual's creative ability.

> The necessary condition is a normally functioning nervous system; the sufficient condition is a prolonged period of training in a social system, with particular reference to learning the language characteristic of the group; and the creative condition is an individual's ability to combine patterns derived from various sources into new patterns with extended application.[10]

A complete understanding of the nature of thought would entail a complete understanding of the functioning of the nervous system of the individual, the social system in which he lives, his language, and his ability to combine and extend patterns.

Contrary to popular notions, we don't think simply with our heads, or our hearts, but with the entire nervous system at a completely automatic level.

> Recent investigators in this field emphasize that thought itself is an unconscious process and that it is only the result of thought which appears.[11]

The functioning of the nervous system can be compared to that of a computer:

> The input is 'conscious', as is the output, but the processing which takes place between input and output is unobservable in the intact machine.[12]

The nervous system gathers a vast amount of information which is processed in a manner unknown to us. Recently, however, scientists have discovered that "in some way the central mechanisms 'decide' what data they will accept and refuse."[13] How this decision is made is still another mystery.

Easier to understand is the idea of a prolonged period of training in a social system and a particular language as a condition limiting thinking. It seems to be in accord with the Whorfian hypothesis. The creative condition is fairly lucid and sounds very familiar to the ears of those concerned with the teaching of a second-language. It is interesting to note that linguists seek to produce in an individual the ability to combine patterns derived from various sources into new patterns with extended applications, yet not ever associating the word "creative" with this ability.

With the above conditions more or less in the background, there are several approaches to the study of thinking, some more prominent than others. There is the traditional approach based on traditional logic. There is the associationist approach based on the classical theory of associationism, with the idea that the ability to think is related somehow to the working of associative bonds. Wertheimer discards the above theories and believes "thinking consists in...realizing structural features and structural requirements..."[14] Bartlett as quoted by Dienex (1959) divides thinking into analytical and constructive. By analytical he means concern with details, explicit formulation of concepts. By constructive, he means perceiving the over-all picture, less explicit formulation of concepts, building up of concepts following some intuitively realized requirement or standard.

When laymen think of thinking, they do so only in terms of analytical thinking. It probably seems more real, more concrete, to them than constructive, creative, intuitive thinking.

> Analytic thinking characteristically procedes a step at a time. Steps are explicit and usually can be adequately reported by the thinker to another individual.[15]

Language teachers, especially those trained in linguistics, may often be heard saying that in elementary language classes students are not supposed to think,only to respond automatically. That the students should not be engaged in analytical thinking is what they should be saying. Language students are thinking, whether the teacher likes it or not, and they should be encouraged to think, non-analytically, creatively, constructively, intuitively.

Intuition

There is, naturally and unfortunately, as little systematic knowledge available about the nature of intuitive thinking as there is about the nature of thinking in general. The word "intuition" itself is highly ambiguous, and its unqualified use is so misleading that its expulsion from the dictionary has been earnestly proposed.[16] Since this

has yet to take place, we offer the following words from Webster as quoted by Bruner (1960):

> Intuition implies the act of grasping the meaning, significance, or structure of a problem or situation without explicit reliance on the analytic apparatus of one's craft.[17]

Bergson as quoted by Bunge (1962) defines intuition as "that which enables us to grasp whatever remains external to intelligence.[18] A highly evolved form of instinct. Descartes gave the example 2 + 2 = 4, 3 + 1 = 4, therefore 2 + 2 + 3 + 1 as something we must see intuitively. In some arthimetic systems, however, 12 + 1 = 1 as something we must see intuitively. In some arthimetical systems, however, 12 + 1 = 1, and the figures 2 + 2 = 4 have no meaning.[19]

> Mathematical intuitionism is closer to conceptualism, which would hold that '3' is a sign representing the concept of the number three and is not to be confused with the latter.[20]

Intuition, as used in science, designates modes of perception. Bunge gives the following as among the most frequently accepted uses of the term "intuition" in contemporary scientific literature: 1) quick perception, 2) imagination, 3) abbreviated reason and 4) sound judgment.[21]

Both in the development of children and in the historical evolution of every discipline, the intuitive stage comes first.

> Critical cognition, characterized by an awareness of assumptions and limitations, as well as by demand for test, is not found among children under eight.[22]

It would be interesting to compare the above statement made by a mathematician, and one made by a language teacher about her very young elementary school students.

> A child functions by instinct. He reacts naturally and spontaneously to stimuli. There is no veneer of fear, doubt, prejudice, and preconception to thwart, distort or blunt his preconception. There is no analysis or rationalization to confuse him...He doesn't want to know why 'Buenos dias,' which literally says 'Good days,' actually means 'Good morning'... He immediately perceives that the expression is a greeting and answers 'Buenos dias,' without complications.[23]

As a child develops, under the influence of linguistic practice, his intuitive thinking develops and his speech becomes more creative.

> This process is 'intuitive' to the extent that despite being rational, it is not entirely conscious--or, if preferred, it does not fit entirely into the focus of awareness.[24]

One of linguistics major contributions to language learning has been the dictum that language is behavior and that behavior can be learned only by inducing the student to behave. Granted that language is behavior, but

what kind of behavior? A set of habits, the answer comes back quickly, action or movements done automatically without consciousness as the result of repetitions. This is inadequate--language is more than this. It is a skill. To say that language is simply a set of habits would be like equating a man's habit of knocking on wood and a karate man's skill in breaking a board.

> If human speech really was habit, there would be no difference between language as used by human beings and parrots...Actually one is always meeting new and hitherto unknown formulae and creating them oneself in one's own speech.[26]

Workers in different fields have demonstrated that the vast majority of all human behavior is "unconsciously" controlled.[27] In view of this, and the fact that language is a skill, not a habit, a more precise definition of language may be given--Language is an unconsciously controlled skill.

This definition renders unnecessary the linguist's idea that "The student must not only learn a construction, he must also realize how this construction is 'made up,' how it 'comes apart.'[28]

> Piaget demonstrated that the child uses subordinate clauses with because, although, etc., long before he grasps the structures of meaning corresponding to these syntatic forms.[29]

As long as the student is able to produce a pattern accurately and can unconsciously control it, a descriptive statement, of whatever form, is as Valdman pointed out of purely academic interest.[30]

A concept, a generalization, a rule need not be described or expressed in words to be effective. And conversely, its expression in words will not make it effective. The problem here is probably based on the erroneous assumption that all thinking is analytical and depends on words. Thinking, as stated previously, can be intuitive, and does not necessarily have to use words.

> Much thinking never brings in words at all, but manipulates whole paradigms, word-classes, and such grammatical orders 'behind' or 'above' the focus of personal consciousness.[31]

When we teach a language as an unconsciously controlled skill, we should strive to give our students an intuitive grasp of syntax. To expect analysis, tearing apart of structures, discovery of expression of rules, and the like, is not the teaching of a language. Einstein said that as far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality.[32] In language, as in mathematics, a rule conveys much less information than the construction itself from which the rule was derived. The rule, furthermore, will not produce the skill. Stockwell, Bowen, and Martin (1965) tell the story of a Spanish professor who claimed Spanish gender agreement was easy to explain in just a few minutes of class time. Then, in the few minutes of conversation that followed, he made about a dozen errors in that which to him was so easy to explain.[33]

Developing Intuitive Thinking

The development of intuitive thinking in students of a second-language should be the ultimate aim of a language course. It would be naive, however, to think that this can be accomplished instantly or easily. The importance of experience for intuitive solutions to problems has been established. Piaget classifies children's behavior between the ages of 4 and 7 as intuitive. Children, then, have had 4 years of experience before they begin operating intuitively. A chess player will be able to arrive at insightful solutions after years of play. A karate man, after years of training, will "sense" a punch even before his opponent has moved a muscle. In science, familiarity with the subject breeds intuition. "There is no new knowledge that is not somewhat determined by prior knowledge and that is not logically related to it."[34]

Experience and a foundation are needed for intuitive thinking to develop. But it would be absurd to wait years before we start inducing this type of thinking in our students. It would seem possible to integrate it from the very beginning with other procedures that are used to enlarge the student's body of knowledge.

> If he (the student) has not been trained during the elementary stage to cultivate his powers of unconscious assimilation and reproduction, he will attempt the hopeless task of passing all the language matter through the channel of full consciousness.[35]

Begin early, then. Encourage, reinforce, reward intuitive thinking. Discourage any expression of analytical thinking. Speech has been called "the best show man puts on."[36] If we agree, we should listen to what an actor has to say on acting.

> In the case of acting, this theorizing makes you conscious of something which should, by now, be instinctive... The cultivation of the instinct is the most important thing in acting...Acting must be like driving a very fast car...It's like a game.[37]

Substitute "second-language learning" for "acting", and "intuitive thinking" for instinct,"and you'll have a very sensible statement. Classroom practice with a particular structure should be designed so as to permit the structure to drop out of conscious awareness as soon as possible. The practice should be lively and never to the point of fatigue. "With increasing fatigue, the instrument (the new structure) again begins to be perceived with anxiety or hostility."[38] The practice should be varied enough and full of unexpected utterances, appearing at irregular intervals, which will catch and hold the student's attention. "We attend to the situation only when the message perceived is not what was expected; in informational terms, one can say that the expected conveys no information."[39] The practice should allow for guesses on occasions. "What ! . Guessing in second-language learning! Absurd! the reader may scream. Guessing may be allowed, with minimum dangers of mistakes, if the drill is well-prepared, groups things together, makes use of analogy, or appeals to symmetry.

Controlled guessing is what is meant.

Practice should deal with all aspects of a structure. Not only 3 + 2 = 5, but also 2 + 3 = 5. If a student practices a set of sentences inadequately, say, through imitation and question-answer drill, he may end up with what Wertheimer calls a structure-blind formation:

Tomo el cafe.	A + B
Hable espanol.	C + D
Miro el reloj.	E + F

This rather simplified example of a structure-blind formation could be turned into a structural formation by a simple slot-substitution drill.

Toco la guitarra.	A + B
Toco el ukelele.	A + B
Compro el ukelele.	A + B

Wertheimer (1959) gives a nice example of the "if-so" structure-blind form: "If 2 is smaller than 3, then snow is white." Oftentimes students of a second-language make sentences of this type.

> 'If-so' for the most part involves some structural justification. It does not simply mean an 'if-so' with regard to structurally unrelated matter. The sensible 'if-so' calls for some kind of inner coherence, some kind of intrinsic structural relatedness.[40]

In planning a language course, we must keep in mind that the structure of a language is usually a very relative thing, and "whatever is newly learned must be learned in relation to something already familiar."[41] Since we can't teach a student the structure of the language all at once, we must do it a little at a time. This gives him a partial picture, one that he has to re-adjust whenever he gets a new structure. A student, for instance, learns the -ara form in the structure, Era necesario que Carlos bailara. A week or two later, he is introduced to Si Carlos bailara, yo bailaria. Sometime later, Me importa poco como bailara. Then, he may see, Quien bailara asi." Even though the verb and its form are familiar to the student, the new structures are not and require a re-organization on his part of his picture of Spanish structure. This re-organization is what psychology calls "accomodation," and is generally unpleasant. If this reorganization is also accompanied by the absorbing of other new information, say, new verbs were to be learned along with the new structure, the student may end up learning nothing, neither the new verbs or the new structure. It is amazing the number of texts which do not rotate the tasks of absorbing information and of reorganizing structure. As we have stated, accomodation or reorganization of a particular scheme is unpleasant. Absorbing new information, that is, assimilation, is relatively pleasant, if it's not combined with accomodation. Rotating tasks which require accomodation with those that require assimilation will not only produce more learning, but will make that learning enjoyable, or at least less painful, to the students.

This rotation of tasks, along with the extension of applications of a structure, that is, practicing all its aspects, encouraging controlled guesses, use of analogy, symmetry, avoiding structurally-blind practice,

avoiding practice to the point of fatigue, discouraging analytical thinking, all these will help in developing intuitive thinking, in internalizing whatever the student learns through imitation, "for it is the internalization of overt action that makes thought, and particularly the internalization of external dialogue that brings the powerful tool of language to bear on the stream of thought."[42]

The Teacher's Role

"Sensei to iwareru hodo baka de nashi," which means roughly "I'm not foolish enough to the extent of calling myself a teacher," is a Japanese saying I usually include in the first-day orientation talk I give students. The teacher's role, especially in the area of second-language learning, is of a model, both of the language taught and of the intuitive thinking he's trying to develop.

It has been said that "the formalism of school learning has somehow devalued intuition."[43] One could add it has devalued thinking in general. We are living in an educational era that prizes over-write and over-read, resulting in a great deal of under-think. It is generally agreed that how people think depends on the kind of thinking experiences they have had. Most school training today provides few thinking experiences. We may see this in the graduate student who after writing dozens of papers and reading scores of books is unable to adjust his way of thinking to the rapid interchange of thoughts that take place in a final oral examination.

The development of effectiveness in intuitive thinking, by providing the student with experiences that call for this ability, should be the objective of the language teacher. In addition, the teacher should exhibit an attitude that shows he practices what he preaches. Letting hunches, guesses, his feel for the language guide him over dubious points, and not turning too quickly to the grammar or the dictionary, will develop the proper attitude in the students.

> The teacher is not only a communicator, but a model. Somebody who does not see anything beautiful and powerful about mathematics is not likely to ignite others with a sense of the intrinsic excitement of the subject. A teacher who will not or cannot give play to his own intuitiveness is not likely to be effective in encouraging intuition in his students.[44]

The above applies not only to mathematics, but also to languages, and to most other subjects. Acting as he wants his students to act, the teacher will inspire them. Entertainers have long realized the value of sing-along routines to establish rapport with the audience. Teachers would do well to learn from them. Teachers should invite their students to learn-along with them. This would seem natural to those of us who believe languages are learned, and not taught.

> Children have been learning a second-language with great ease since the spoken word became an instrument of communication. No programs, no 'methods,' just learning, This is

> a pedagogical fact that needs reaffirming: languages are learned, not taught. Perhaps we, as teachers, have lost our perspective, presumptuously emphasizing the teaching of a language and disregarding the learning of a language.[45]

For those who have lost their perspective, humble soul-searching and a re-adjustment of their self-concept may come in handy. For others with a more rigid mental frame, a visit to a psychoanalist may be of help.

Conclusion

The future of a sound theory of second-language learning is in the hands of linguists and psychologists, or more precisely, in the hands of people trained in both language and psychology. When we use language, we are using a very complex mechanism. To say that language is simply a set of habits is inadequate. Language is a skill, an unconsciously controlled skill. Language and thought are inseparable. There are many questions unanswered concerning both. We must find out more about the nature of language and the nature of thought. The simplest utterance, as Vygotskii (1962) pointed out, is a process; an intuitively controlled process, we add. Our knowledge of how this process functions is very limited, but as our understanding of the tools involved in the process, that is, of language and thought, increases, bringing us conditions and limitations which perhaps we were completely unaware existed, we must be prepared to re-organize our ideas and attitudes and to modify in whatever manner necessary, for the better we hope, our theory on second-language learning.

> I would place as the most important mark of an adequately educated man a realization that the tools of human thinking are not yet understood, and that they impose limitations of which we are not fully aware. As a corollary it follows that the most important intellectual task for the future is to acquire an understanding of the tools, and so to modify our outlook and ideals as to take account of their limitations.[46]

Let us pursue this task.

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